**ΟΥΡΑΝΙΑ ΛΑΦΤΣΙΔΟΥ**

**ΑΕΜ: 4231**

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# Plant

Plants are mainly multicellular, predominantly photosynthetic eukaryotes of the kingdom Plantae. They form the clade Viridiplantae (Latin for "green plants") that includes the flowering plants, conifers and other gymnosperms, ferns, clubmosses, hornworts, liverworts, mosses and the green algae, and excludes the red and brown algae. Historically, plants were treated as one of two kingdoms including all living things that were not animals, and all algae and fungi were treated as plants. However, all current definitions of Plantae exclude the fungi and some algae, as well as the prokaryotes (the archaea and bacteria).

Green plants have cell walls containing cellulose and obtain most of their energy from sunlight via photosynthesis by primary chloroplasts that are derived from endosymbiosis with cyanobacteria. Their chloroplasts contain chlorophylls a and b, which gives them their green color. Some plants are secondarily parasitic or mycotrophic and may lose the ability to produce normal amounts of chlorophyll or to photosynthesize. Plants are characterized by sexual reproduction and alternation of generations, although asexual reproduction is also common.

There are about 300–315 thousand species of plants, of which the great majority, some 260–290 thousand, are seed plants (see the table below). Green plants provide a substantial proportion of the world's molecular oxygen and are the basis of most of Earth's ecosystems, especially on land. Plants that produce grain, fruit and vegetables form humankind's basic foodstuffs, and have been domesticated for millennia. Plants have many cultural and other uses as ornaments, building materials, writing material and in great variety, they have been the source of medicines and drugs. The scientific study of plants is known as botany, a branch of biology.

## Effects of global warming

The effects of global warming are the environmental and social changes caused (directly or indirectly) by human emissions of greenhouse gases. There is a scientific consensus that climate change is occurring, and that human activities are the primary driver. Many impacts of climate change have already been observed, including glacier retreat, changes in the timing of seasonal events (e.g., earlier flowering of plants), and changes in agricultural productivity.

Future effects of climate change will vary depending on climate change policies and social development. The two main policies to address climate change are reducing human greenhouse gas emissions (climate change mitigation) and adapting to the impacts of climate change. Geoengineering is another policy option.

Near-term climate change policies could significantly affect long-term climate change impacts. Stringent mitigation policies might be able to limit global warming (in 2100) to around 2 °C or below, relative to pre-industrial levels. Without mitigation, increased energy demand and extensive use of fossil fuels might lead to global warming of around 4 °C. Higher magnitudes of global warming would be more difficult to adapt to, and would increase the risk of negative impacts.

# Atmosphere

An atmosphere (from Greek ἀτμός (atmos), meaning 'vapor', and σφαῖρα (sphaira), meaning 'sphere') is a layer or a set of layers of gases surrounding a planet or other material body, that is held in place by the gravity of that body. An atmosphere is more likely to be retained if the gravity it is subject to is high and the temperature of the atmosphere is low.

The atmosphere of Earth is composed of nitrogen (about 78%), oxygen (about 21%), argon (about 0.9%) with carbon dioxide and other gases in trace amounts. Oxygen is used by most organisms for respiration; nitrogen is fixed by bacteria and lightning to produce ammonia used in the construction of nucleotides and amino acids; and carbon dioxide is used by plants, algae and cyanobacteria for photosynthesis. The atmosphere helps to protect living organisms from genetic damage by solar ultraviolet radiation, solar wind and cosmic rays. The current composition of the Earth's atmosphere is the product of billions of years of biochemical modification of the paleoatmosphere by living organisms.

The term stellar atmosphere describes the outer region of a star and typically includes the portion above the opaque photosphere. Stars with sufficiently low temperatures may have outer atmospheres with compound molecules.

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| LESSON | TOPIC | ASSIGMENT | POINTS | DUE |
| 1 | What is distance learning? | Wiki#1 | 10 | March 10 |
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| 2 | History & theories | Brief paper | 20 | March 24 |
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| 3 | Distance learners | Discussion#1 | 10 | April 7 |
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## Ozone depletion



Ozone depletion describes two related phenomena observed since the late 1970s: a steady decline of about four percent in the total amount of ozone in Earth's stratosphere (the ozone layer), and a much larger springtime decrease in stratospheric ozone around Earth's polar regions. The latter phenomenon is referred to as the ozone hole. There are also springtime polar tropospheric ozone depletion events in addition to these stratospheric phenomena.

The main cause of ozone depletion and the ozone hole is man-made chemicals, especially man-made halocarbon refrigerants, solvents, propellants, and foam-blowing agents (chlorofluorocarbon (CFCs), HCFCs, halons), referred to as ozone-depleting substances (ODS). These compounds are transported into the stratosphere by the winds after being emitted at the surface. Once in the stratosphere, they release halogen atoms through photodissociation, which catalyze the breakdown of ozone (O3) into oxygen (O2). Both types of ozone depletion were observed to increase as emissions of halocarbons increased.

Ozone depletion and the ozone hole have generated worldwide concern over increased cancer risks and other negative effects. The ozone layer prevents most harmful UVB wavelengths of ultraviolet light (UV light) from passing through the Earth's atmosphere. These wavelengths cause skin cancer, sunburn, and cataracts, which were projected to increase dramatically as a result of thinning ozone, as well as harming plants and animals. These concerns led to the adoption of the Montreal Protocol in 1987, which bans the production of CFCs, halons, and other ozone-depleting chemicals.

The ban came into effect in 1989. Ozone levels stabilized by the mid-1990s and began to recover in the 2000s. Recovery is projected to continue over the next century, and the ozone hole is expected to reach pre-1980 levels by around 2075. The Montreal Protocol is considered the most successful international environmental agreement to date.

# Ecosystem

An ecosystem is a community made up of living organisms and nonliving components such as air, water and mineral soil, all interacting as a system. (However, ecosystems can be defined in many ways.) The biotic and abiotic components interact through nutrient cycles and energy flows.Ecosystems are the network of interactions among organisms, and between organisms and their environment. Ecosystems can be of any size but one ecosystem has a specific, limited space.On a larger scale, some scientists view the entire planet as one ecosystem).

Energy, water, nitrogen and soil minerals are other essential abiotic components of an ecosystem. The energy that flows through ecosystems comes primarily from the sun, through photosynthesis. Photosynthesis also captures carbon dioxide from the atmosphere. Animals also play an important role in the movement of matter and energy through ecoystems. They influence the amount plant and microbial biomass that lives in the system. As organic matter dies, decomposers release carbon back to the atmosphere. This process also facilitates nutrient cycling by converting nutrients stored in dead biomass back to a form that can be used again by plants and other microbes.

Ecosystems are controlled both by external and internal factors. External factors such as climate, the parent material that forms the soil, topography and time have a big impact on ecosystems, but they are not themselves influenced by the ecosystem. Ecosystems are dynamic: they are subject to periodic disturbances and are in the process of recovering from past disturbances that were external to the ecosystem.[10] Internal factors are different. They not only control ecosystem processes but are also controlled by them. Internal factors are subject to feedback loops.

Humans operate within ecosystems and the cumulative effects of human activities can influence even external factors. Climate change is an example of that cumulative impact. Ecosystems provide benefits--called Ecosystem services--which people depend on and can disrupt to their own detriment. Best practices of Ecosystem management suggests that it's better to manage at the ecosystem level, rather than trying to managing individual species.

# Η οικογένειά μου